

What is claimed is:

1. A method of handling writing new data, comprising:

creating a journal entry that points to a first storage location containing old data to be replaced by the new data, wherein the journal entry is maintained after writing the new data;

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allocating new storage space having a second storage location; and

writing the new data to the new storage space at the second storage location.

2. A method, according to claim 1, wherein the storage space is provided by at least one storage device.

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3. A method, according to claim 2, wherein allocating new storage space includes remapping a switch coupled to the at least one storage device.

4. A method, according to claim 3, wherein the new data is written by a host coupled to the switch.

5. A method, according to claim 4, wherein the switch presents the host with a logical

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storage area that is created by the switch mapping to different locations of the at least one storage device.

6. A method, according to claim 5, wherein the mapping is transparent to the host.

7. A method, according to claim 4, wherein the switch includes at least one processor and a corresponding memory.
8. A method, according to claim 7, wherein the journal entry is part of a journal that is stored in the memory.
- 5 9. A method, according to claim 1, wherein the storage space corresponds to a disk array storage device.
10. A method, according to claim 9, wherein the journal entry is stored in the disk array storage device.
11. A method, according to claim 9, wherein the journal entry is stored outside the disk array storage device.
- 10 12. A method, according to claim 11, wherein allocating new storage space includes remapping a switch coupled to the disk array storage device and wherein the journal entry is stored on the switch.
13. A method, according to claim 1, wherein each of the journal entries also includes a time stamp.
- 15 14. A method, according to claim 1, wherein each of the journal entries also includes a result of writing the data.

15. Computer software that handles writing new data, comprising:

executable code that creates a journal entry that points to a first storage location containing old data to be replaced by the new data, wherein the journal entry is maintained after writing the new data;

5 executable code that allocates new storage space having a second storage location; and

executable code that writes the new data to the new storage space at the second storage location.

16. Computer software, according to claim 15, wherein the storage space is provided by
10 at least one storage device and wherein executable code that allocates new storage space remaps a switch coupled to the at least one storage device.

17. Computer software, according to claim 16, wherein the journal entry is stored on the switch.

18. Computer software, according to claim 16, wherein the journal entry is stored at a
15 location other than the switch.

19. Computer software, according to claim 15, further comprising:

executable code that provides a time stamp to each journal entry.

20. Computer software, according to claim 15, further comprising:

executable code that provides a result of writing the data to each journal entry.

21. A method of restoring data to a storage device, comprising:

accessing a journal having a plurality of entries, wherein each of the entries points to prior data that existed on the storage device before a write caused the entry to be created, wherein there is an entry in the journal for each data write to the storage device that occurred after an initial time; and

using each of the entries to remap the storage device to point to the prior data.

22. A method, according to claim 21, wherein each of the journal entries includes a time stamp.

23. A method, according to claim 22, wherein using each of the entries to remap the storage device includes remapping the one of the entries having a most recent time stamp.

24. A method, according to claim 21, wherein using each of the entries to remap the storage device includes changing in a map of a switch coupled to the storage device.

25. A method, according to claim 24, wherein the storage device is a logical storage device presented by the switch and wherein remapping includes modifying the relationship between the logical storage device and physical storage devices coupled to the switch.

26. A method, according to claim 25, wherein the physical storage devices are disk array storage devices.

27. A method, according to claim 24, wherein accessing the journal includes accessing a memory of the switch.

28. A switch, comprising:

a plurality of input ports;

5 a plurality of output ports; and

at least one backplane interposed between the input ports and the output ports,

wherein said backplane selectively connects input ports and output ports to provide that,

in response to data being written at one of the input ports, a journal entry that is

maintained after the data is written is created to point to a first storage location on storage

10 space coupled to the output ports, the first location pointing to old data to be replaced by

the new data, new storage space having a second storage location is allocated and the data

is written to the new storage space at the second storage location.

29. A switch, according to claim 28, further comprising:

a memory that is part of the backplane, wherein the journal entry is stored in the

15 memory.

30. A switch, according to claim 28, further comprising:

a processor that is disposed within the backplane.

31. A switch, according to claim 30, wherein the processor includes executable code that causes the switch to create the journal entry and to allocate the new storage space.

32. A journal used for continuous backup of a storage device, comprising:

a first entry that points to a first storage location containing old data replaced by new data written to the storage device; and

5 a plurality of additional entries that point to respective additional storage locations containing old data replaced by new data written to the storage device, wherein for every write to the storage device that occurs after an initial time, there is a corresponding entry.

33. A journal, according to claim 32, wherein each of the entries includes a time stamp.

34. A journal, according to claim 32, wherein each of the entries includes a result of
, writing the data.

10 35. A data storage device, comprising:

at least one disk drive that contains data;

at least one host adaptor, coupled to the at least one disk drive, that receives data to be stored on the at least one disk drive; and

15 computer software that handles writing new data, wherein the computer software includes executable code that creates a journal entry that points to a first storage location containing old data to be replaced by the new data, wherein the journal entry is maintained after writing the new data, executable code that allocates new storage space having a second storage location, and executable code that writes the new data to the new storage space at the second storage location.